Chemistry & Geochemistry Department Seminar Series

FRIDAY, April 26th, 2019, 12 noon, CBB - 102

Statistical analysis of gene arrays focusing on the differences between subpopulations in Montana

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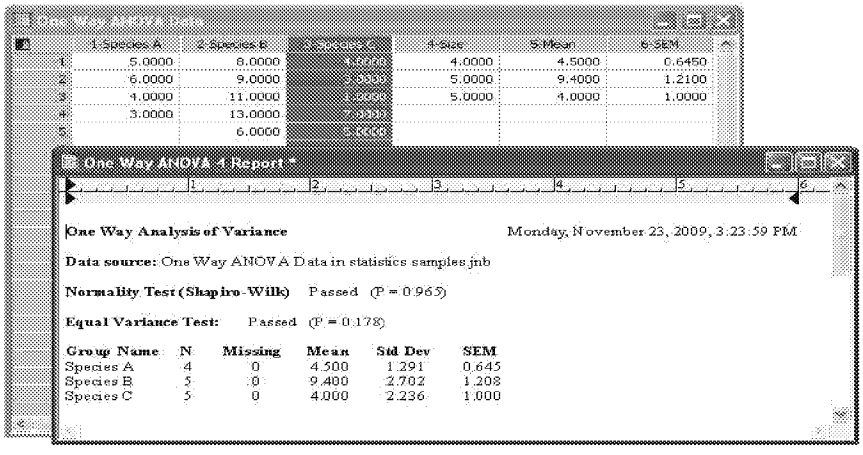

Butte, Montana is part of the largest superfund complex in the lower 48. Superfund designation was given due to historical contamination from below ground and surface mining activities. In addition, there is currently still constant open-pit copper and molybdenum mining. A study was done to determine the metal concentrations in people living in the Butte area. To determine if the Butte population had a higher than normal metal concentration, a control city, Bozeman, was used. In this previous study, hair and blood samples were obtained from different volunteers from the Butte and Bozeman populations. Also, air and soil samples were retrieved in Butte to compare to the hair and blood samples that were taken from the Butte populations. Using these mean and expression values, the different populations were compared to determine if the gene expression rates were different for the populations of Butte and Bozeman. Blood samples were also used to isolate mRNA. These blood samples were run on gene array plates. Each plate contained 27 genes associated with inflammation and immune response. From the analysis of the gene array plates, the genes were analyzed by comparing the mean values and the expression values between the two groups (Butte vs. Bozeman). The results of this study are expected to show gene expression changes in the volunteers living in Butte which could be attributed to the elevated metals found in the Butte volunteers.

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